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*of the association for physical
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JANUARY-FEBRUARY, 1960

VOL. 14 NO. 1

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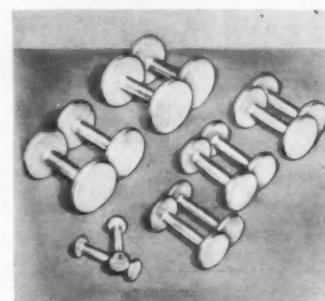
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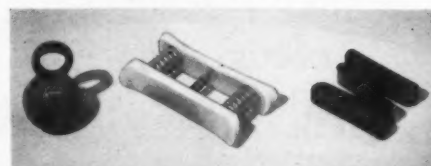
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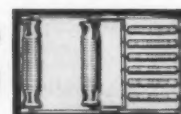
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THE PHYSIOLOGY OF AGING*

CHARLES E. STAFFORD, M. D. **

An old German Proverb goes something like this: The age of a wooden picket fence is three years, of a dog three picket fences, of a horse three dogs, of Man three horses. Whatever the case was in those years, physiologists of today see no reason why man cannot reach the age of 125 years as the result of the normal process of aging. Heredity seems to play an important part. It is said that if the total ages of your two parents and your four grandparents add up to 500 years, you can expect to live to at least the age of 80.

A brief glance at some statistics quickly shows that in numbers, the aging population is reaching formidable proportions. In July, 1957, out of total population of 171,229,000 here in the United States, there were 14,749,000 who were in the age bracket of 65 and over. In 1950 there were 12,000,000 of these and in 1940, less than 9,000,000 were over 65. It is estimated, in round numbers, that for 1970 out of a total population of 200,000,000 there will be 19,000,000 oldsters. Another interesting observation is that in 1920 of all deaths, only 50% were in persons aged 45 and over. However, 1955 revealed that 82.3% of all deaths were in this age group. We all know that during those 35 years there have been tremendous advances in the treatment and prophylaxis of infectious diseases which in a great measure explains this discrepancy of percentages.

The aging process can perhaps be best broken down into various forms:

1. *Maturity* — wherein the demands of specialization are equalled by the support of the metabolic pool.
2. *Natural Aging* — here the demands of specialization gradually exceed the support of the metabolic pool.
3. *Accelerated Aging* — wherein hyperfunction with hyperspecialization exceeds the support of the metabolic pool. Examples of this are hypertension, heavy labor, excessive child birth and progressive emphysema. Demands of specializa-

tion are not met completely; (a) because of depletion of metabolic pool by other factors (starvation, diabetes, pituitary disease, castration), or (b) because disuse or hypofunction of organs fail to ensure its demands are met (disuse atrophy). Human cellular and organic physiology is such that "no work, no chow" is the rule.

4. *Complications of Aging* — tissues react to accelerated aging by abnormal degrees of fibrous repair (cirrhosis of the liver, contracted kidney, cerebral gliosis) or by abnormal forms of parenchymatous regeneration in the form of hyperplasia, benign neoplasia, or malignancy. Organs, the seat of accelerated aging are afflicted by diseases of separate etiology (atherosclerosis, erinfection tuberculosis, accelerated hypertension).

I find that the classification of body organs in accordance with their reaction to the aging process might illustrate better exactly what is going on and about when it starts.

There is a group that I shall call the Temporary organs, wherein aging occurs at or before maturity:

1. The deciduous teeth. These shed because of pressure atrophy on their roots as the permanent teeth grow upward against them. This occurs between the 6th and the 13th year.
2. The placenta. Infarction of the vessels begins at about the sixth month of pregnancy, and becomes complete in the ninth month.
3. The thymus gland. This atrophies in response to the activity of the steroid sex hormones which occurs from the 11th to the 16th year and varies between the sexes, the females having activity of these steroid sex hormones beginning at an earlier age than the males.
4. Corpus luteum. One perhaps does not consider this little "blood blister" of the ovary, that results during the escape from the ovaries of the matured ovum, as an organ. But it is, and it plays a very important part. If pregnancy does not occur, it involutes about the 14th day. If pregnancy does occur, then involution is completed on about the 140th day.

The Fall of the year is to me inspiring. The weather is sharp and clear, the harvest has been

*Presented on October 15, 1959 to the Northwest Section of the American Congress of Physical Medicine and Rehabilitation at the VA Hospital, American Lake, Washington.

**Chief, Geriatrics Service, Veterans Administration Hospital, American Lake, Wash.

completed, the granaries filled, the woods are exquisitely colored. And so it is with the autumnal organs, for it is among them that involution begins at the 40th year, the age so many consider as that of maturity, of warmth, of satisfaction. I shall divide them into two groups:

Persistent or Progressively Nonvital Organs

1. Joint capsules, cartilages, ligaments.
2. The elastic lamellae of blood vessels, and pulmonary parenchyma.
3. Diffusion membranes—such as the synovia and choroid plexus, the latter that filter the fluid into the spaces of the cerebral-spinal systems.

Endocrine Dependent Organs

1. Breast and gynecological tract, uterus and ovaries.
2. Prostate Gland.
3. Thyroid gland.

Then there are the *Permanent Organs*. Here involution begins at the 60th year. These I shall divide into two groups.

Perennial Tissues (Wherein no replacement ever occurs)

1. Central nervous system and the retina of the eye.
2. Myocardium.
3. Renal glomeruli.
4. Permanent teeth.
5. Voluntary muscle.

Immortal Tissues (In these there is continued self renewal)

1. Loose connective tissue and the reticuloendothelial system.
2. Involuntary muscles.
3. Lining of the gastrointestinal tract, the respiratory and the urinary tracts.
4. Accessory digestive organs—pancreas, liver and salivary glands.
5. Epidermis.
6. Endocrine glands (pituitary, adrenal, parathyroid, islet tissue).

The body mass as a whole shows a definite change. In early years the ratio of protein to fat shows a greater amount of protein. But, as age progresses, this ratio becomes reversed.

Perhaps you are out with a sweet young thing who has tried to lead you to believe she is 35 years old, but you strongly suspect she is in her 45's or over. As you hold her hand, gently but firmly squeeze a bit of the skin on the dorsum of the hand, and quickly release it, and watch. If the little hump of skin quickly returns to the level of the skin of the rest of the hand, then she is not fibbing about her

age. But, if the hump is lazy in returning to that level, she is over 45 years old. The skin slowly loses its elasticity. And with this the layer of fat immediately beneath it becomes thinned out. I think that because of the latter and the resultant loss of the immediate insulation of the nerve fibers responding to cold sensation, the oldster complains bitterly of a chilly draft when those about him who are younger are perfectly comfortable. With the exposed parts of the skin, such as the dorsum of the hands and the face, hyperkeratosis very frequently occurs, probably resulting from radiation ionization, the commonest being ultraviolet. At this time there is disturbance in distribution of the pigment melanin, and areas of pigmentation of the skin again on exposed parts occurs. Basal cell carcinoma, a comparatively benign form of cancer, shows up, and must be differentiated from simple hyperkeratosis. This and the formation of the much more malignant squamous cell carcinoma belongs to the category of complications of the aging process, wherein tissues, especially the Immortal Tissues, are reacting to accelerated aging by an abnormal form of parenchymatous regeneration. Whether there is a virus factor also involved at this late stage of the game, as thought by some today, I do not know. The glands of the skin show changes. There is a drop out of both the sweat and the grease glands, a definite decrease in the total numbers of both. Perhaps to some extent this explains the presence of a difference in the odor of the geriatric body as compared to that which is much younger. The skin again, because of this, appears and actually is more dry. Associated with this undoubtedly is the factor of a decrease in the activity of the thyroid gland.

Cataracts are seen fairly often in the aging population, and this disturbance and clouding of the lens of the eye is due to radiation ionization from the ultraviolet spectrum. The control of the physiological activity of the lens is disturbed by age, and presbyopia then becomes increasingly evident, perhaps first in difficulty with reading the fine print of a telephone directory. As every medical student learns, "My eyesight is O.K., but my arm is too darned short."

Pyorrhea is not particularly a disease of the aging. It occurs at all ages. But, because it is a painless and insidious disease, it is often neglected until considerable damage has occurred. This last process takes time, and with time there is aging. Eventually, because of neglect, teeth are removed and replaced with dentures. The dentists are aware of the fact that with full dentures, the maximum bite force is but 20 per cent of the normal. Even with the use

of partials there results in the loss of 50 per cent. Then there appear mechanical difficulties. Upper dental plates seal well by themselves, but lowers are a different story entirely. Because the lowers never seal as properly, it is very preferable to save some of the lower teeth to use as anchors for the prosthesis. And the aging individual is faced with another difficulty with these. As he grows older, the soft tissues of the mouth atrophy. He may go to the doctor and for medical reasons be placed on a reducing diet. If he succeeds in losing weight, again the soft tissues of the mouth will atrophy by their own loss of fat, and the dental plates will start to rattle. Peanut fragments, fig seeds or other small foreign substances will start to become irritants. The 80 per cent loss of efficiency in chewing meats and other food plays a not-too-unimportant factor in the increasing loss of appetite, especially in respect to certain important foods, proteins in particular. Add to all of this a progressive atrophy of the taste buds and the oldster is beginning to get into trouble.

Visual acuity is felt to be at the greatest during the 20th year. At age 40 there is a 10% drop, at age 80 a 57% drop. If an 80 year oldster requires 100 foot candles of light to read by or to discern the full details of objects, a 20 year old will only require 10 foot candles. It has been shown that the nerve fibers themselves do not show much, if any, difference in the transmission of electrical impulses because of age. However, discrepancies are found when nerve circuits are studied, and it is believed that the areas of slowing down are in the synapses, those interconnecting areas between nerve fibers and nerve cells, where certain chemical reactions are instigated, such as the formation of acetylcholine. It is probably due to the latter consideration that there is the marked difference in the visual acuity between the 20 year old and the 80 year old. The nuclei of nerve cells show definite degenerative changes in aging. And in dementia senilis, there is marked drop out of nerve cells and associated nerve fibers with an overall atrophy of the total brain substance, and a replacement, to a certain extent, by glial or supportive cells that are found in the brain substance.

The gastrointestinal tract shows definite changes. There is a slowing of the motility of the stomach, and of the intestines, frequently playing an important role in the cause of constipation. There is less hydrochloric acid in the stomach, even to the extent of total absence of the acid. Proper absorption of iron must have the presence of hydrochloric acid. With this disturbance there is a frequent associated secondary anemia. This is made worse yet by another complication. The muscles of the intestines show

degenerative changes, which often result in formation of pouches or diverticulae. Erosion and ulcerations occur in these with resultant bleeding and loss of blood which further increases the anemia. Add to these chemical and mechanical changes there likewise results a lowering of absorption of calcium. Demands upon the bony stores of calcium lead to osteoporosis (this is also complicated by endocrine disturbances in many cases) and probably also the calcium complex of the teeth known as apatite. Gall stones are common in the aging, especially females. These not too uncommonly perforate into the intestines and cause obstruction.

One of the organs that plays a constant important role in the metabolic pool of the body is the pancreas. The reverse of ratio between protein and fat places greater demands upon that organ to handle the metabolism of fat and carbohydrates. Aging individuals often gain weight by a total increase of their fat content. When a certain point of fat saturation occurs, the pancreas becomes incapable of handling the demands for the metabolism of carbohydrates and a form of diabetes occurs which differs from that which occurs in children and adolescents. This complication extends further to include the walls of the arteries. Abnormal fat or lipid deposits of the cholesterol complex appear with both physical and physiological disturbance of the continuity of the arteries. At the same time the elasticity of the arterial walls changes and decreases. Elastin is lost and replaced by metacollagen. There is a decrease of blood supply which may be more obvious in certain parts of the body than in others. In some there is a generalized arteriosclerosis. In others the arteriosclerosis may be more extensive in the cerebral arteries with manifestations of progressive brain damage, perhaps first starting by the syndrome of the "little strokes" of Alvarez, or the massive cerebral vascular accidents resulting in hemiplegia. Or the coronary arteries of the heart may be especially involved and sudden death ensue from an infarction. The arteriosclerotic kidney slowly progresses on and on to an eventual total failure of that organ of excretion and electrolyte control.

The activities of the positive and negative charged particles in the body have to be within a certain range to allow continuation of life. One important area of this control is in the lungs, and particularly the small air sacs or alveoli of those lungs. Their walls are composed much of elastin which allows for expansion and collapse in a normal physiological rhythm of breathing. With advancing age this is replaced, as mentioned above, by metacollagen which does not possess elasticity. Release

Fig. 1

Diseases	Prevalence (percent)
1. Atherosclerosis	
Cerebral	15.5
Coronary	22.0
2. Malignancy—mainly gastrointestinal	25.0
3. Mental Impairment (Influenced by economic dependence)	52.5
4. Abdominal hernias with ruptures (affecting relaxed structures)	
Men	18.1
Women	1.8
5. Hypertrophic arthritis	100.0
6. Respiratory infections:	
Pulmonary tuberculosis (men 2-1)	9.0
Chronic bronchitis	4.0
7. Gallbladder disease:	
Women	38.0
Men	18.0

(From Monroe, Diseases of Old Age)

of carbon dioxide is decreased from the normal, and the elderly individual becomes in a very precarious electrolyte balance which, as the years pass by, his body as a whole has been able to accept. Degenerative processes elsewhere that disturb the electrolyte balance are also playing their part—the kidney, the pancreas, the secretory cells of the gastrointestinal tract, the diminishing “chow call supplies” delivered by sclerotic arteries. Then, along comes an infection, perhaps starting in the upper respiratory tract, then going into a pneumonia. Or something else comes up that requires surgery. The oldster's very marginal electrolyte balance is thrown out of kilter. One of the commonest manifestations of this, and one which is too often misinterpreted, is the development of confusion, increased memory loss, increased irritability, and even psychosis. Because the metabolic pool is at such a low level, these people will often not show very much of a rise in temperature. Some will not even show very much of a rise of the white cells of the blood. But, they are sick, very sick. And it takes them a long, a very long time to recuperate or recover, because the important part of their recovery lies in re-establishing some sort of a normal electrolyte balance after the pathological process has been treated by antibiotics or surgery. And, even then, they may not ever come back up to where they were before this unfortunate incidence occurred, for it is here that accelerating factors play their part in the aging process.

Some geriatric diseases complicating aging tissues are summarized in Fig. 1.

These aging people are the ones who come into to the little and yet so big topics of their conversa-

tions, there is an important part of that role of the healer. I am reminded somewhat of the gladiators in the Roman amphitheaters who turned to their emperor, looked up and said: *Moriamus, te salutamus*—We about to die, salute thee. The span of life ahead for these people is so short. Make of those months, those few short years a pleasure, an incentive, a bit of happiness and content. They have been so forgotten, so left behind by their loved ones, their friends, their neighbors. Times and customs have changed and are so strange to them. Yet they are humans, just like you are, with likes and dislikes, with sorrows and happiness. Treat them as humans, with kindness, with gentleness, with, above all, understanding. It is amazing how they will respond! your clinics. So often their doctors have had to spread themselves thinly among so many other patients, there is little time or opportunity for close and individual and constant contact. To you, who do the “laying on of hands”, who take time out, and listen

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PSYCHOLOGICAL RESEARCH STUDIES AGING

A many-sided psychological research program to analyze the individual age changes and resulting problems that occur as persons grow older is under way at the Kecoughtan, Va., Veterans Administration center, the VA has announced.

Since psychological scales and tests, developed for use with other groups, are not adequate for this sort of study of older people, the VA researchers have developed new psychological tests and adapted standard ones to special needs of the research. Subjects of the studies are aging veteran-residents of the VA domiciliary home at the Kecoughtan center, who number more than a thousand. Heading the Kecoughtan research is Dr. Neil W. Coppinger, and associated with him are Dr. Rayford T. Saucer and Dr. Rayman W. Bortner. All three are clinical psychologists. Dr. Saucer also is an authority on electronic equipment.

The work is part of the VA's broad, agency-wide research program on the entire process of aging, aimed at helping fit VA activities to needs of aging veterans and at the same time providing the nation with additional knowledge in this field.

Among other matters, the researchers are studying how the change from living in a small family unit to living in a VA domiciliary can be accomplished with a minimum of sacrifice of the aging veteran's individuality—how going away to a home for old people affects men of advancing age.

EXPANDING CORRECTIVE THERAPY VISTAS*

LEO ROSENBERG, M.D.**

Modern corrective therapy got its start when Gen. Omar Bradley, Administrator of Veterans Affairs, and Gen. Paul Hawley, Chief Medical Director, decided that the valuable lessons and experience gained during the war years should be retained and expanded in federal hospitals for the benefit of the veterans. Physical reconditioning became known as corrective therapy.

In 1946 when corrective therapy started in the Veterans Administration under Dr. John Eisele Davis there were approximately 400 personnel employed. Today they number about 500. There is no doubt that Corrective Therapy as a profession has found a niche in the medical family and now is prepared to share its benefits with all humanity.

A recapitulation of these benefits includes:

1. Proving the value of appropriate activity for hospital patients along with definite treatment.
2. Supervised physical and mental activity is beneficial to mental patients.
3. Developing suitable exercise routines for bed patients with different types of disabilities. The disabilities include amputee and prosthetic trainee, medical conditions, neurological, psychiatric, tuberculous and general maintenance of long term care patients.
4. Teaching in the intensive training and rehabilitation centers.
5. Participation in hospital organizations and ward routine.
6. Establishing rapport with patients leading toward rehabilitation efforts.

In the Veterans Administration we feel that corrective therapy has proven its value by its participation.

In the early war years, Dr. Howard Rusk, noting the deconditioning result of prolonged bed rest, clearly and convincingly demonstrated the value of appropriate activity for hospital patients along with definitive treatment rendered by specially oriented physical educators who carried out medical prescriptions for exercise. These workers, whom Dr. Rusk designated as the "cream of the crop," soon began to experience the gratification of achievement as they

saw the effects of their efforts. They soon realized that new goals had been established and their response to this challenge led them into many unknown and uncharted areas of definitive treatment and rehabilitation. The saving in military manpower was so significant that the reconditioning program was authorized in all military hospitals.

The demand for outstanding physical educators during the war brought into being a group of dedicated individuals who soon found it necessary not only to restudy their anatomy, physiology and kinesiology but also to develop new techniques and suitable exercises for the different types of disabilities. Not only that, but they had to teach in the intensive training centers that had been established. And in doing all these things they incidentally learned about hospital organization and war procedures.

Although Veterans Administration physicians coming into contact with corrective therapists are quick to realize the value of this additional aid, it has not yet become evident that there is sufficient recognition or demand for corrective therapy services in areas where they can be of significant value. And it is to this particular aspect of the situation that I would direct your attention.

1. Many physical medicine departments throughout the country do not and will not employ corrective therapists except as physical therapy aides.
2. Many hospitals notably mental institutions and children's hospitals either are not aware of corrective therapy or are unwilling as yet to hire them.
3. There is a woeful lack of trained corrective therapists available for use in clinics treating patients with Cerebral Palsy, Muscular Dystrophy or Multiple Sclerosis.
4. Adaptive physical education should be presented in grade and high schools as well as in colleges. Isn't this a field towards which the profession should be training some of its people?
5. In the field of athletics, should not the trainer of the team be a certified therapist? Perhaps even the coach would be helped if he had some fundamental training in corrective therapy techniques.

*Presented at Conference, Ohio-Kentucky-Indiana Chapter, Association for Physical and Mental Rehabilitation, Ohio Valley Chapters, AART and AMRDC, V.A. Hospital, Marion, Ind., Oct. 23, 1959.

The obvious answer, of course, is medical recognition or rather recognition by the American Medical Association. Such recognition apparently is based upon meeting certain specified standards. The Association for Physical and Mental Rehabilitation has set up an excellent program in the brochure *Directional Goals for Clinical Therapy Experiences* by the Education Committee of Karl K. Klein, Carl H. Young and Louis F. Montovano, which explains the technique of college affiliation with hospitals for the purpose of obtaining clinical experience for the senior student. It is interesting to note that the corrective therapy internship is based upon completion of a four year requirement with a degree in physical education. It is also highly significant that in the brochure on page, 4, A 3, the sentence reads "To provide an aid for arriving at mutually accepted content of teaching materials on the part of the affiliating institutions."

Since there are at least 33 affiliations between schools and hospitals for clinical training in corrective therapy it must be obvious that these schools are meeting the standards of teaching anatomy, kinesiology and physiology in a manner acceptable for clinical experience. This has been a source of much dissatisfaction and disapproval in the past.

"There is no attempt made to integrate the training of a student affiliate with that of the adapted educational program in the public schools, since student teaching in this special area is the prime responsibility of the teacher education institution." Nevertheless, Dr. Ellis H. Champion, Director, School of Physical Education, Springfield College in a Workshop Report of July 15-26, 1957 states that there are special class requirements which require specially medically physical educators; certainly a place for certified corrective therapists.

STUDY EFFECTIVENESS OF HORMONES IN TREATING TB

A ten-hospital cooperative study to determine the effectiveness of certain hormones in treatment of tuberculosis has been begun by the Veterans Administration, the agency has announced. These are the substances called steroids, produced by the body's adrenal glands under control of the pituitary. Receiving the hormone therapy, together with doses of commonly used anti-TB drugs, will be patients with advanced tuberculosis of the lungs, particularly those who have had recent flare-ups of the disease.

As patients of this sort often do not respond favorably to the anti-TB drugs now in general use, doctors are seeking a means of improving treatment for them.

Participating in the VA study are the agency's hospitals at Albuquerque, N. Mex.; Baltimore; Dearborn, Mich.; Durham, N.C.; East Orange, N.J.; Hines, Ill.; Memphis, Tenn.; Oteen, N.C.; Salt Lake City, Utah, and West Haven, Conn.

Several individual research projects in recent years have indicated that steroids, particularly the adrenal ones, have

Another and final phase of importance in expanding the field of corrective therapy is that of research and education. In research one does not need to seek a problem. Reflective thinking about one's program critically and objectively, seeking out its inadequacies and doing something about it is good research. One of the best places to begin is rehabilitation.

Corrective therapists or "exercise therapists" should be specialists in the physiological and psychological effects of exercise as well as the best procedures for carrying them out. They should also attempt to develop new programs and evaluate and re-evaluate existing programs. They should be able to prove that their techniques are making the unique contribution that are claimed for them. Research points up the sphere of activity; it aids in explaining the rationals of the profession, and it makes clearer the area of responsibility.

The future of corrective therapy is assured. That a small group of dedicated individuals working under an inspired leader have been able to go so far in so short a period of time is indeed a portent of future development. Its mission is to augment other forms of rehabilitation. It merits the recognition of the medical profession because of its contribution in the therapeutic field.

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limited value in treatment of tuberculosis. The patients generally showed rapid improvement in symptoms and in the condition of their lungs as revealed by x-ray examination.

However, most of the studies did not demonstrate any greater incidence of closing of lung cavities and elimination of live TB microbes from sputum among hormone-treated patients, than the incidence among patients receiving only the usual anti-TB drugs.

A study made at the West Haven VA hospital has indicated that with higher doses of these pituitary and adrenal hormones, plus anti-TB drugs, some fundamental changes in the response of the body to tuberculosis may take place.

On the basis of the West Haven findings, the VA cooperative study will use higher doses of the hormones for longer periods of time, to determine whether these basic changes can be produced with regularity.

TEEN-AGE DYSMENORRHEA: A PROBLEM AND A CHALLENGE*

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HYMAN MENDUKE, Ph.D.***

GROVER W. MUELLER†

JOSEPHINE CHRISTALDI††

The term "dysmenorrhea" refers to a set of symptoms at the time of the menses. Cramps or pain are the predominant characteristics, but complaints such as headache, backache, abdominal swelling and, occasionally, nausea and vomiting are also associated with them.

Practically every teen-age girl experiences some discomfort at the time of the menses (1). In approximately two-thirds of high school girls, this discomfort is acute enough so that they may be considered to have at least occasional dysmenorrhea (2). Last year, about 11 percent of the girls in the senior public high schools of Philadelphia had severe enough symptoms to require at least one visit to the school infirmary. There were doubtless many more who consulted family physicians or who simply "doctored" themselves. With almost 19,000 girls enrolled in the senior high schools of Philadelphia, 11 percent represents more than 2,000 girls who visited the infirmary almost 4,000 times in one school year. High as these figures are, it is noteworthy that only five years ago the corresponding numbers were three times as large as at present. While it would be possible to estimate the monetary cost of these visits, the "real" costs to society in terms of time lost from classes and in terms of discomfort and pain to the individual are incalculable.

The cause or causes of dysmenorrhea are not well known. Many gynecologists and obstetricians feel it is largely psychogenic in origin, but our own findings have not supported this view. In a recent study (3) there was no evidence that the condition could be treated successfully by "mass psychology." At the Dysmenorrhea Clinic of the Jefferson Medical College Hospital, each patient is examined by a

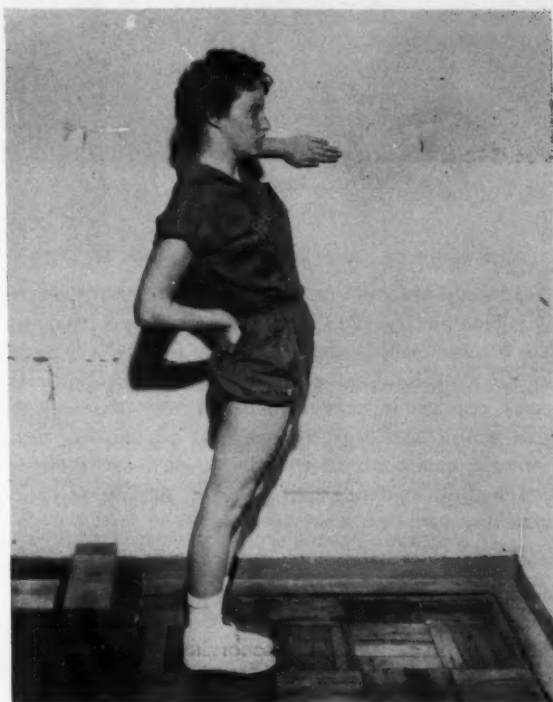


Fig. 1

psychiatrist, and his findings also suggest that the great majority of dysmenorrheic patients are not psychoneurotic, though admittedly psychoneurotic women may well have a high incidence of pain.

Patients who have dysmenorrhea are frequently nervous and upset. It seems likely, however, that this is an effect rather than a cause. A person who has frequent attacks of pain, whether it be from bad teeth, from a diseased gall bladder or from dysmenorrhea, is very likely to become nervous and acquire a low threshold of pain.

In a study of high school and college girls who were active in school athletics, an inverse correlation was found between the degree of pain and the amount of sports participation during the time of the menstrual period (4). Nearly all girls who were free of dysmenorrhea participated in sports during the period

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Fig. 2

while approximately one-fourth of those with severe dysmenorrhea curtailed their activities very sharply. It is a moot question whether such activity is a cause or effect of minimal pain; probably it is both. It seems reasonable that those with the most severe pain would feel least inclined to participate. Yet, from the comments of the girls themselves, there is considerable evidence that athletic activity actually prevents or relieves pain.

Though the mechanism of action is still obscure, individual exercises such as those developed by Billig (5) and by Mosher (6) have been of considerable value in relieving dysmenorrhea.

The Billig exercises are performed three times daily, six times on each side, in the following manner: (Fig. 1)

1. Starting position: The girl stands with her left side toward a wall. Her feet are together and about eighteen inches from the wall, the actual distance depending upon the length of the upper arm from the elbow to the shoulder. The left forearm and hand are placed against the wall both at shoulder level. The heel of the right hand is placed in the hollow on the posterior aspect of the greater trochanter of the femur. The girl should strongly contract the abdominal and gluteal muscles as the pelvis is tilted upward in front and downward in back.

2. The exercise: The pelvis is moved obliquely forward toward the wall to a point of restriction, and then a little beyond. This movement is aided by the heel of the hand which presses on the greater trochanter of the femur. The shoulders should be kept in line with the elbow which is resting against the wall, and not permitted to shift forward. The knees remain straight, while the pelvis never touches the wall if the exercise is performed correctly. The exercise is to be done three times to the left side. The position is then reversed and the exercise done three times to the right side.

The Mosher exercises are divided into three components: breathing exercise, leg exercise and abdominal exercise. They are performed twice daily as follows: (Fig. 2)

1. In the hook-lying* position, with one hand placed on the abdomen, the girl breathes deeply ten times.
2. In the standing position, with the hands resting on the top of the back of a chair, the girl rises on the toes and lowers the heels 20 times.
3. In the same position as in 2, the girl bends the knees deeply and extends them five times.
4. In the hook-lying* position, the girl brings her knees as close to the chest as she can, and then returns to the hook-lying position. This exercise is done ten times.

*Supine position with the knees bent and the soles of the feet flat on the floor close to the buttocks.



Fig. 3

From the similarity of results obtained from both the Billig and the Mosher therapeutic exercises, it appeared likely that any exercise which includes twisting and bending of the trunk and which is performed regularly several times a day will produce good results. Currently, the Golub (7) exercises which are easier to teach, supervise and perform, have been evaluated and are as effective. They are performed in the following manner: (Fig. III & Fig. IV)

1. In a side stride standing position with arms raised sideward at shoulder height, the trunk is turned to the left. The knees are kept straight while the girl, twisting and bending the trunk, touches her left foot with her right hand. An attempt is made to reach around the outer side of the opposite foot until she can touch the heel of that foot.

2. In the standing position with arms at the sides, the girls swings her arms forward and upward, simultaneously raising the left leg vigorously backward.

The advantage of using specially selected exercises in the treatment of dysmenorrhea are obvious. Such exercises can be taught to large groups of girls at school, there is no expensive medication, they are

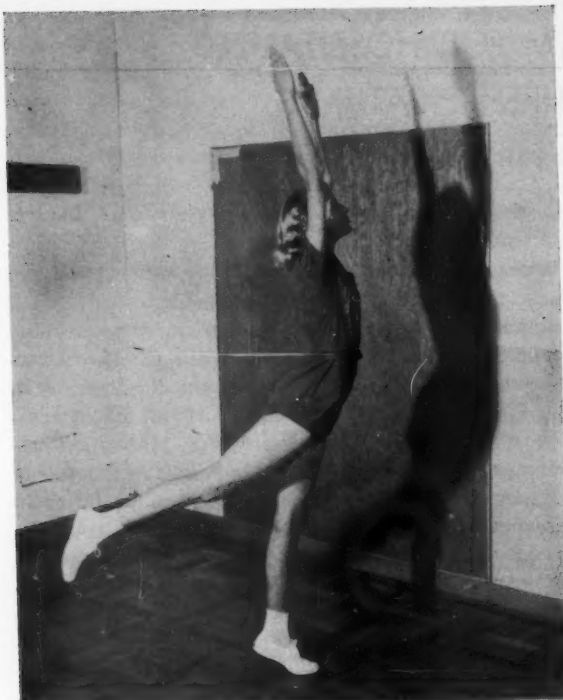


Fig. 4

certainly to be preferred to surgical procedures, and they can be continued over long periods of time.

The school seems to be the logical place to institute a program of individual exercises because it is possible to schedule a definite time and place for calisthenics which will be performed under the careful supervision of trained and interested teachers. The teacher of physical education, working in close cooperation with the school nurse, is in an ideal position to aid in the establishment of a wholesome attitude toward menstruation and dysmenorrhea, if it should occur, as well as to aid in the establishment of habits of routine exercises.

These two women educators, physical education instructor and nurse, are able to instill in the girl an understanding of her anatomy and the benefits to be derived from general good health which is always enhanced by routine exercises performed regularly and long continued. It is to be hoped that this habit learned in school will be extended into adult life.

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NEW EXERCISE PROGRAM AIDS HEMIPLEGICS

A new method of nerve and muscle re-education, for patients whose arms are paralyzed as a result of strokes, has been reported by the Veterans Administration. Developed by Dr. Harry T. Zankel, chief of physical medicine and rehabilitation at the Durham, N.C., VA hospital, the method has been used for 27 patients at the hospital, and found definitely successful in the majority of cases.

Dr. Zankel calls the treatment "stimulation assistive exercises" (S.A.E.). It consists of a series of electrical impulses, administered through electrodes on muscles of the arm and forearm, which is combined with exercise. As the electrical stimulus is applied, ten times per minute for a one-half hour period at least twice daily, the patient is urged to attempt to move the paralyzed muscles.

The group studied by Dr. Zankel was made up of men ranging in age from 35 to 69 years, with an average age of 53. All had been suffering from the effects of strokes for at least four weeks, and their recovery of motion of the arms, if any, was at a standstill.

The S.A.E. treatment was given for varying lengths of time and in some cases for prolonged periods of hospitalization. All of the 27 patients received other physical medicine and rehabilitation treatment in addition to the stimulation assistive exercises. Range in motion of the joints of the paralyzed arms was used as a measure of improvement. Results were excellent or satisfactory in 20 of the group and unsatisfactory in the other seven.

The amount of improvement varied with the individual but not necessarily with the duration of the paralysis. Some patients whose recovery of motion of the arms had been at a standstill for a year or two showed definite improvement in range of motion of the involved joints after persistent treatment with the S.A.E. routine.

Even among the seven patients whose improvement was rated unsatisfactory, most showed improvement in one or more of the movements tested.

Dr. Zankel said the S.A.E. treatment should begin early in paralysis of the arms following strokes and should be continued at home after the patient's discharge from the hospital. Because of the simplicity of the method, it can be applied outside the hospital by intelligent non-professional personnel under supervision of a physician, he said.

DEYOE REAPPOINTED

Frank Deyoe, former president of the Association for Physical and Mental Rehabilitation and at present, coordinator, PM&RS, VA Hospital, West Roxbury, Mass., has been reappointed to the President's Committee on Employment of the Physically Handicapped for a three year term.

A THERAPEUTIC PROGRAM FOR HOSPITALIZED CHRONIC SCHIZOPHRENIC PATIENTS

W. T. APPELL, PH.D.*

W. H. RIES, M.D.*

This paper will discuss, in descriptive terms, one type of treatment program designed to aid the hospitalized chronic schizophrenic patient. There will also be a presentation of some clinical findings and results concerning the effectiveness of the program with this type of patient.

The program is called the Motivation-Discharge program and is now in existence at the Veterans Administration Hospital, Chillicothe, Ohio. This installation is a neuropsychiatric hospital caring for approximately 2100 male patients. The magnitude of the problem facing any program of this type is illustrated by the fact that about two-thirds, or 1400 patients, of the daily population of this hospital can be classified as chronic, long-term patients. The Motivation-Discharge program is situated on one of the hospital buildings comprising the Continuous Treatment Service.

From a historical point of view, this program may be said to contain many of the elements of the total-push type of treatment as described by Myerson (1) and Tillotson (2) in contrast to the partial-push type of program. In general, the Motivation-Discharge program consists of two stages, each stage having varying degrees of structure, and each stage being dependent upon the other. The program is multi-disciplinary in its approach to patients and utilizes as treatment intensive group and individual psychotherapy, drug medication, educational therapy, occupational therapy and corrective therapy, job placement and follow-up routines.

The main goal of this program, as is true of all our hospital programs, is to aid the patient to become rehabilitated so that he may return to the community as a productive individual. However, there are many factors that influence this goal; some of these limiting factors are the patient's pre-hospital level of adjustment and the availability of his family to aid him in his return to the community. Therefore, this program accepts as one of its chief goals the achievement of a

better hospital adjustment by the patient. Such an adjustment is defined as being distinguished by the patient's ability to care for himself in terms of daily hospital routine, the maintaining of a good work record in his therapy assignment and the sharing in group responsibility concerning hospital activity.

Patients are selected for the Motivation-Discharge program chiefly on their failure to react, over a long period of time, to other hospital forms of treatment, or by their inability to adjust to such elements of hospital routine as dressing and feeding themselves or lack of interest in participation in any simple activity. In short, these patients are those whose future looks bleak; they are drawn mainly from the Continuous Treatment Service of this hospital.

The personnel utilized in this program which treats 103 patients are one psychologist, one physician, one nurse, three physical medicine and rehabilitation specialists and five trained aides or attendants. While this number may seem excessive, with the exception of the rehabilitation specialists, three of the aides and, to some extent, the psychologist, all other personnel have building and hospital duties other than those concerning this program.

The first stage of the program has as its immediate goal the attempt to get the patient interested in, or, at least, aware of, his immediate surroundings. The second goal is to get him to cooperate, at least, in a passive manner, with the program routine; proceeding from here to such higher activities as dressing himself, assuming some responsibility and participating actively in group activities. In order to achieve these goals there has been established an extremely structured ward of the building where activity, on the part of both patients and personnel, is the keynote. All program activities are conducted on the building or on the immediate ward with the exception of some special services activities such as bowling or movies. All of these activities and stimulations are highly controlled.

When a patient first enters the program, treatment is individually oriented by the treatment personnel, especially our psychiatric aides. However, this is shifted as quickly as possible to group oriented treatment in order to force the patient to be, at least,

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a passive member of some group. The patient's treatment day is strictly scheduled in a fairly inflexible manner, with every activity being assigned definite hours. These activities are educational therapy, corrective therapy, occupational therapy, assigned ward work, special services activities and psychological procedures. Activities of this type are what are used to activate and motivate the long-term chronic schizophrenic patient on the first stage of the program. As we will see later, continuous evaluations and decision-making are made concerning each patient's progress.

Stage two of the program is conducted on the same building in an adjoining ward. This, however, is not a closed ward and the patients are permitted the freedom of the hospital grounds, dependent upon their general behavior. The main goal here is the development of the assumption of increased responsibility on the patients' part. He now becomes fully responsible for his actions and must successfully complete his hospital work assignment. Each patient is evaluated in terms of his personal needs and treatment aims are worked out for him and then translated into some work assignment. In his work, opportunity is presented to him to become a supervisor of other patients and thereby becoming directly responsible for some work activity. Since the length of hospitalization of these patients has been a long one, it has been found necessary to re-introduce the patient into the habits of community living. This is accomplished at first, by visits to the hospital canteen, then, by supervised trips to a near-by town and finally by frequent week-end passes to his home. In this stage, the orientation of all program personnel is upon allowing and encouraging the patient to solve new experiences by himself; however, at all times, there is some control and supervision of the patient's activity by the staff in a friendly, cooperative way. It is felt that this supervision represents, in a sense, the continuity of treatment from the first to the second stage of the program. In brief, this part of the program starts the preparation for discharge to the community.

There is no fixed length of time that any patient may stay on the program in either the first or second stage. However, if after two years on the first stage, the patient shows no signs whatever of improvement, he may be returned to another ward of the building where he will be observed and possibly readmitted to the program. Patient stay on the first stage of the program ranges from approximately 12 to 18 months; patient residence on the second stage can be indefinite.

The role of the psychologist within this program is not that of an administrator; he fulfills the traditional role in program development. Briefly, he acts

as the coordinator of the over-all treatment plans of the program for all patients, and is responsible for the establishment and meeting of the treatment goals and follow-up of patients as they proceed from the first stage to the second stage or, as they leave for the Exit Service, which is a program developed by the vocational counseling psychologists for the purposes of job placement.

On another level, he acts as a consultant to all of the other professions involved within the program. Here, he aids in the solution of the treatment problems of any patient as they arise, helping these professions in the establishment of their individual treatment techniques in line with current psychological practice.

He is also concerned with staff-to-staff relationships, helping each staff member to develop responsibility and freedom within his profession as well as being a contributing member of the treatment team. The teaching duties of the psychologist are high inasmuch as this program serves the nursing service as a training unit, thereby making for additional teaching duties, outside of the regular sessions for the program personnel. Research is a continuing aspect of the program and, here again, the psychologist is responsible for not only psychological research, but is available as a consultant to other specialties. Of course, the psychologist must also fulfill, when available, the duties of a psychotherapist, being in charge of both group and individual psychotherapy for patients.

As with the psychologist, the physician or psychiatrist has a role within the program that exists on several levels. He functions as the leader of the treatment team in the sense of medical responsibility, coordinating all forms of treatment in line with current medical practice. One of his major areas of responsibility is that of the administrator of the program, establishing guide lines for therapy aims and reviewing treatment procedures. The psychiatrist also functions as a teacher with the emphasis upon possible physiological factors in the emotional disturbance of any patient. He actively shares in the therapy process and in the selection of patients. The psychiatrist is responsible for the ordering of all medication and the general health of all of the patients within the program. In brief, he fulfills the role of administrator and leader as has been previously described (3).

In brief, Stage One of this program is a time of the mobilization of resources of the individual patient, while Stage Two is the moving out of interests by the patient. One of the most important features of the program is the continuous support that it gives to the patient during this difficult transition.

Our results, to date, show that 103 hospitalized chronic schizophrenic patients have been, or are still in, residence on the program. The age range of these patients is from 26 to 42 years of age with a mean age of 34. The length of their hospitalization is from six to 14 years with the mean length of stay being nine years. Of the total patients that have been seen in this program, 53 are still in residence on the first stage. Therefore, this report will concern itself with the fifty patients that have left (Table 1).

DISPOSITION OF PATIENTS LEAVING STAGE ONE	
Disposition	Number
To Second Stage	40
No Improvement	10

TABLE 1

It is found that 40 of the patients, or 80 per cent improved on the first stage of the program to an extent that warranted their being transferred to the second stage. Ten patients, or 20 per cent, showed no improvement over this two year period and were, therefore, returned to other wards of the building.

At this time, no comparable data exists that would allow any statement to be made regarding the effectiveness of the first stage of this program. However, as a rough guide, it must be realized that all of these patients had long periods of hospitalization wherein other forms of treatment had met with little success, and that all of these patients had unfavorable prognoses.

Findings in respect to patient progress in Stage Two is presented in Table 2.

SURVEY OF PATIENT PROGRESS — STAGE 2	
Disposition	Number
Trial Visit, discharged	11
Trial Visit, returned	2
Transferred to Exit Service	8
In residency	19

TABLE 2

It is noted that 11 of the patients, or 27.5 per cent from Stage Two, received Trial Visits to their homes, and after a one year period of successful adjustment were discharged from the hospital; two patients, or five per cent, received Trial Visits but did not make a satisfactory adjustment and were returned to the hospital. Eight patients have been transferred to the Exit Service of the hospital where they await job placement. Patients that remain in residence on the second stage total 19 or 47.5 per cent.

While no directly comparable figures exist, Bingham (4) in one of his studies of patient movement at this same hospital did obtain material that gives some idea of the effectiveness of the Motivation-Discharge program.

In an eight month study of various discharge for patients in all buildings of the hospital, he found

that on the building where this program now is situated there was three per cent of the total population receiving Trial Visits in the time studied. With a similar time period on the same building, with the program in full operation, 12.5 per cent of the patients on Stage Two left via Trial Visit. This would seem to indicate an extremely favorable result with patients for whom very poor results may be expected. In addition, Bingham found an approximate rate of 15 per cent of Trial Visit discharges coming from the entire Continuous Treatment Service. Since our building is only one of the several buildings of this Service, the program rate of 12.5 per cent takes on added importance.

Five per cent of the patients were returned from Trial Visit for failure to make a satisfactory adjustment to community life. Bingham found that ten per cent of total hospital Trial Visits result in return to the hospital. This finding may indicate that the program is effective in terms of sustained patient improvement after the patient leaves the program. However, future studies are necessary to evaluate this factor.

Nineteen patients, or 47.5 per cent, who left the first stage remain on the second stage. Some of these patients are now in the process of leaving the hospital on Trial Visit status while others, it is anticipated, will leave via a proposed foster home program.

In general, since there is no control group, and in the absence of other studies that might be directly comparable, limited confidence must be placed in these findings. However, they do seem to be extremely suggestive of the treatment potential within the Motivation-Discharge program.

Let us now proceed to a brief discussion of the program. As has been pointed out by Stotsky, Mason and Samaras (5), the danger of a program of this type is that treatment may be carried out by the various specialties in a rather insulated manner with the end result being no continuity of treatment for the patient and a rather uncoordinated treatment program. Also, in the development of programs, there is a strong possibility that nursing service personnel, *i.e.*, nurses and psychiatric aides, will gradually be excluded from the treatment function. In this program, one of the specific aims is in the opposite direction; nurses and aides are included on all possible levels. We wish to point out another danger, that programs such as the Motivation-Discharge one can become isolated in terms of being uncoordinated with other hospital programs.

We have attempted to overcome these dangers by paying the greatest attention to the two factors of

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A. P. M. R. BUSINESS MEETINGS

The following summary has been condensed from the official minutes of business meetings of the Association for Physical and Mental Rehabilitation held July 4-11, 1959 at the Deauville Hotel, Miami Beach and originally recorded by the Secretary, Lester P. Burrowes. The summary is confined to significant action taken which concerns all of the membership.

BOARD OF GOVERNORS

Creation of Office of Executive Director

A committee consisting of President-Elect Norman Tenner, Dr. John E. Davis, Leo Berner, Raymond Heaslet and Lester Burrowes was appointed to study recommendations concerning the establishment of the position of Executive Director. After due deliberation the committee submitted a report favorable to the proposal, outlining duties and responsibilities of the position and proposing a stipend of \$2,000 for the incumbent. The committee, in outlining the function of the Executive Director, emphasized that the new position would not supplant the President or existing committees of the Association.

Dr. John E. Davis was unanimously elected to the position of Executive Director and announced that the new headquarters of the organization would be transferred to Rehoboth Beach, Del.

Membership Committee

In an effort to retain the support of active members who have moved out of the field of corrective therapy, the following recommendation was made by a committee consisting of Bernard Weber, Kenneth Denning and Leslie Root: "In recognition of the fact that the Association for Physical and Mental Rehabilitation must broaden its basic concepts in order to provide recognition and membership status for active members who become engaged in areas of rehabilitation other than exercise (corrective) therapy, and whose new professional field prohibits full participation in APMR activities, and these persons wish to retain a measure of their active membership and certification privileges, be it resolved that:

1. Those active members affected be classified in a separate membership category such as "past active members," whereby the members may retain certification renewal privileges at the prevailing rate (\$5.00 annually) plus membership status in the special category at \$5.00 per year.

a. The member's entrance into this special category shall be subject to approval by the Professional Standards Committee.

b. The member must be currently active and

certified in good standing at the time of application for such special status.

c. The "past active member" shall be accorded all privileges of professional and associate members.

Be it further resolved that:

2. Active members, many of whom have contributed extensively to the support of the association, be encouraged to retain active status as long as feasible before applying for "past active" membership status.

Be it further resolved that:

3. The special membership category, if approved by the Board of Governors at this annual meeting, be instituted at the beginning of the next membership year, July 1, 1960.

The resolution was seconded and approved with two dissenting votes being recorded.

● Kenneth Denning, Chairman, Membership Committee, discussed a system of pro-rating dues, and it was recommended that the Brochure Committee be instructed to insert such information in its publication.

● Approval was given to a motion that corrective therapy assistants be enrolled as associate members, rather than as student members.

● A motion was approved which would give authority to the membership chairman to have certification cards signed in advance and distributed at the same time as membership cards.

● A motion was approved to allocate a stipend of \$150.00 to the membership chairman.

Constitution

1. A motion that the By-Laws be corrected to read, "Student Membership fee, \$3.00" to comply with minutes of the 1957-58 annual meeting was approved.

2. The words, "the incumbent president", were added to Section 1, Article VIII following "Director of Publications."

3. Approval was granted to change Section 3, Article IX, (f) of the By-Laws to read "The membership committee shall consist of a chairman and a vice-chairman."

4. Section 3 (c), Article IX to be deleted.

5. First two sentences, Article II, Section 6 to be deleted.

6. Article IX, Section 3 (c) changed to read:

(a.) Bill and pursue collections in all cases of membership and certification renewals.

(b.) Forward membership information to all Executive Board and committee members re-

quiring it.

- (c.) Forward all monies received from membership fees to the treasurer.

Other constitutional changes are discussed under appropriate headings.

Certification

The following changes in organization and duties of the Certification Committee were approved:

1. An association manual defining the duties, responsibilities and operations of the Certification Committee and Certification Board must be prepared by members of the committee during the 1959-60 term. Final approval of the manual will rest with the Board of Governors at the 1960 meeting.
2. Article IX, Section II of the By-Laws to be changed to read:
 - A. The Certification Committee will be composed of (6) members.
 1. Chairman of the committee will be elected by the Board of Governors and will serve on the Executive Board.
 2. The Chairman will select (5) other members for the committee. These members will be actively serving chapter presidents and will be selected annually.
 - B. No Chairman, Certification Committee, may serve in this capacity for more than five consecutive years.
 - C. The Certification Committee, and Board when necessary, will hold yearly meetings at the time and place of the national convention, to conduct any and all business deemed necessary. The President, APMR, will attend these meetings *ex-officio*. Reimbursement to attend any yearly committee, joint committee, or Board meeting will be made to Certification Board members only. Detailed agendas and approximate cost of these meetings must be submitted to the President, APMR, for prior approval.
 - D. The Board of Governors of the APMR will pass on all new members of the Certification Board.
 - E. Certified members must retain active or "past active" membership in the association or lose certification status.
 - F. The Certification Board will have sole authority to deal with all academic problems relating to certification and problems relating to all phases of testing. Problems relating to organization, administration, and policy will be under the direct control of the Board of Governors, APMR. The Certification Committee will make recommendations to the Certification Board, or Board of Governors, depending on the areas and issues involved.

Elections

Carl Haven Young, Ph.D., Professor of Physical Education at the University of California, Los Angeles, was unanimously elected to the office of President Elect. As such, he will assume presidential duties following the 1960 convention.

Roger H. Wessel was re-elected Director of Publications for a three-year term beginning July, 1960.

Willis P. Denny was elected Certification Committee Chairman in accordance with the changes in the By-Laws discussed above.

Ascendancy to Office

A motion by Willis P. Denny to amend the By-Laws to provide for orderly ascendancy to the office of President was approved. Under this motion, the office of First Vice President will be filled by election of the Board of Governors, and the incumbent will automatically assume the duties of President of the Association the following year.

Awards

George V. Devins, Chairman, Awards Committee, announced the following awards approved by the committee: John Eisele Davis Award to T. O. Kraabel of Washington, D.C.; Achievement Award in Rehabilitation to James Nold of California; Annual Corrective Therapy Award to Arthur Landy of Pittsburgh, Pa.; Fellow Award to Frank Deyoe of West Roxbury, Mass.; Life Membership to Richard Wallace of Tacoma, Wash.; and Past Presidents Award to Willis P. Denny of Dublin, Ga.

Future Conventions

The Board of Governors approved Santa Monica, Calif., as site for the 1960 tri-organizational conference. It approved extension of the tri-organizational plan to 1961 and selected Indianapolis as the convention site.

Miscellaneous

- Approval was given to a recommendation that the incoming president appoint a chairman from the Miami area to develop an APMR program to be presented at the 1960 national convention of the American Association for Health, Physical Education and Recreation. A similar program was presented at that organization's convention last year in Portland, Ore., under chairmanship of Carl Haven Young, Ph.D.
- The Board of Governors went on record as endorsing the Rehabilitation Act of 1959 regarding provision for examination and training in "Independent Living" for the physically handicapped.
- A motion that the Association go on record as being against State licensure for therapists was approved.
- In discussing Rehabilitation Bill S-772, it was moved that the Association not endorse the bill unless it is corrected to read "medically supervised

therapies" (p. 16) in lieu of "physical, occupational or other medically prescribed therapies."

GENERAL ASSEMBLY

The following officers were elected for the fiscal year, 1959-60: First Vice President, David Ser; Second Vice President, George Jurcisin; Third Vice President, Richard G. Fowler; Secretary, John B. Murphy; Treasurer, Vincent M. Oddo.

PROGRAM — cont'd from p. 16

communication and responsibility within our group. Concerning communication, we have established scheduled weekly conferences which are highly informal and are composed of all treatment team personnel who share in all treatment decisions. In addition, and possibly of more importance, the greatest attention is paid to the regular occurrence of "informal talks" among various members of the treatment group in irregular session; here, problems of the moment can be quickly and easily discussed. In respect to nursing service, we emphasize the importance of our nurse and aides in treatment, giving them responsibility and freedom in their work. It is our observation that these individuals make up the core of the program. Previous research findings of Hunt and Appell (6) concerning treatment team formation, in terms of communication, group formation and leadership, have been followed in this program. In brief, there is a leader but the team responsibility is great. The importance of staff-to-staff relationships cannot be stressed too much. We find that with a smoothly functioning group of specialists, we can produce a coordinated treatment team which can maintain a sense of continuity of treatment within our patients. The program is coordinated on a hospital-wide basis with all other treatment programs and treatment plans to avoid any isolation of this program.

It is our belief that, disregarding the etiology of chronic schizophrenia, this is a psychological disturbance characterized by a withdrawal from interpersonal relationships on both a group and individual level, poor work habits and little interest in personal responsibility. The Motivation-Discharge program is aimed at combatting these three areas. First, there is an attempt to give the chronic schizophrenic patient a sense of stability in his surroundings and routine, and emphasis is placed upon the gradual development of his ability in problem-solving in respect to a slowly, increasingly more difficult environment. Second, we endeavor to give the patient confidence in social relationships by actively encouraging a transference from patient to staff and patient to patient. The extension of this transference from situation to

situation is of the greatest aid in helping the patient re-form his relationships, first on an individual basis and then on a group level. And third, this program encourages the gradual growth of good work habits and a sense of personal responsibility which is essential to the dignity of our patients.

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"From Other Journals"

Unless noted otherwise, all abstracts have been prepared by Philip J. Rasch, Ph.D.

Arthur K. Shapiro, "The Placebo Effect in the History of Medical Treatment: Implications for Psychiatry." *American Journal of Psychiatry*, 116:298-304, October, 1959.

"Placebo" is Latin for "I shall please." It is a medication which operates through a psychological mechanism to produce a therapeutic effect independent of its pharmacological effect. Until the beginning of scientific medicine 70 or 80 years ago, the history of medical treatment was the history of the placebo effect. Despite the uselessness of the drugs and procedures generally employed, the physicians did help their patients. The placebo effect is thus related to the doctor-patient relationship. The physician's most important therapeutic agent is his medical degree. Psychiatry has inherent factors which maximize placebo effect potentialities, as the doctor-patient relationship is the major tool in all psychotherapeutic methods of treatment.

B. K. Bagchi and M. A. Wenger, Electro-Physiological Correlates of Some Yogi Exercises. *The First International Congress of Neurological Sciences*, III:132-149, 1959.

EEG records were obtained of 14 yogis during meditation. Meditation did not show the electrical rhythm of the brain characteristic of sleep. The rise in electrical resistance of the skin found during meditation is known to be a sign of relaxation. The evidence suggests yogi meditation is a deep relaxation of a certain aspect of the autonomic nervous system without drowsiness or sleep and at the same time a type of cerebral activity without highly accelerated electrophysiological manifestations. In spite of the spiritual halo which surrounds the so-called "heart-stopping" experiments, these are simply the well-known Valsalva maneuver. This research needs to be continued, as it may throw light on little-known physiological or psychological mechanisms.

Charlotte Buhler, "Theoretical Observations About Life's Basic Tendencies," *American Journal of Psychotherapy*, XIII:561-581, July, 1959.

Present-day thinking about life's basic tendencies moves between an extreme which conceives of man as a whole and one which considers that biological factors in no way determine an individual's values and goals. The author believes that physical factors co-determine motivation and behavior in that they delimit the conditions under which an individual must function and the equipment with which he must work. Her theory of basic tendencies was developed from the following data:

1. Activity originating within the organism establishes built-in tensions that activate the organism. This may be accompanied by a decrease of entropy and a spontaneous transition to states of higher heterogeneity and complexity.

2. A tendency to maintain homeostasis and one to change are equally basic.

3. There are four basic tendencies of life: need satisfaction, self-preservation, adaptation, and productivity. Under unfavorable conditions any of these may turn into its opposite.

4. Fundamental psychoanalytical thinking holds there is only one basic tendency: need gratification or tension reduction. This does not do justice to the interplay of the primary adaptive tendencies.

5. Alexander considers the principle of surplus energy necessary to understand play and creative action. It may be simply discharged or transformed into a product which amplifies the individual.

6. K. Buhler identified three types of pleasure: satisfaction pleasure, function pleasure, and pleasure of creating. Probably each must embody some form of self-expression.

7. C. Buhler has demonstrated a primary positive striving which leads from manipulation to mastery.

8. Maslow describes a strength which leads healthy personalities to enjoy challenges rather than avoid them.

9. French conceives of a motivating pressure which drives people towards goals. The integrative mechanism musters and disposes energies to obtain future ends.

10. Integrated action must be preceded by an appraisal of the situation and of one's own potential.

11. Goldstone thinks of self-realization as the goal of life. Fulfillment implies creative accomplishments, assistance to the welfare of others, and "peace of mind." This may be defined in terms of the four basic tendencies being in good balance, integrated, and having reached their goals.

Jean Spencer Felton, "The Coffee Break," *Industrial Medicine and Surgery*, 28:433-446, October, 1959.

Some time in the early 1940s the concept of regularly scheduled rest periods came upon the war production scene. In 1936 Haggard and Greenburg had noted that there were production falls in the late morning and late afternoon and recommended five meals a day instead of three. Samuelson believes that between-meal feeding can elevate the blood sugar level and possibly reduce the number of accidents. To compensate for the fatigue pattern, employers have granted 5 to 15 minutes rest periods, during which food and beverages are made available. Surveys of 1500 companies show that 70-90% grant some form of coffee break.

This new way of working has affected nearly every one in industry. Scientists frequently take excessive coffee breaks. In many places rest breaks are provided by law; in other instances specific agencies of the Federal Government have authorized rest periods. Courts have ruled that such breaks are beneficial to the employer in that they promote more efficiency and result in greater output, as well as constituting an accepted part of employment generally. Accidents occurring during such breaks are compensable.

The coffee companies have skillfully slanted their advertising to present the coffee break as a right, part of American living, and an aid to production. However, the whole subject needs exploration on a scientific basis before claims that coffee breaks produce a rise in production and morale can be accepted.

Forbes Carlile, "Scientific Trends in Training the Sportsman," in *Swim Forum*, a Synopsis of Lectures at the Royal Historical Society Rooms, Sydney, on 24th October, 1958. (Mimeographed.)

Sports medicine was first conceived in Europe in 1925. The purpose of this paper is to illustrate the role of applied physiology in sports. In 1957 the Russians expanded their sports medicine staff at the Central Research Institute to 36. They are investigating tests to determine the athlete's ability to withstand training, the use of the ECG, and the use of the EMG in the study of athletes. They have found the trained athlete's muscles work with less electrical disturbance than do those of the untrained man. Sports medicine people are given every assistance by athletic officials. In Finland M. Karvonen has done some interesting research on changes in red and white blood cells with physical exercise. In the United States there is practically no applied laboratory science similar to that of the Soviet with the exception of Dr. Cureton's laboratory at the University of Illinois. At the Cotton Memorial Laboratory at Sydney, Australia, the aims are (1) to estimate the athlete's potential, (2) to pin-point physical weakness and suggest remedies, (3) to provide incentive and demonstrate physiological improvement with training, and (4) to provide a scientific aid to the dosing of the training load. Work showing progressive changes indicative of fatigue and over-training has been particularly interesting. Otherwise there is very little research of this type in Australia, Hungary, Communist China, France, and Japan are doing little along these lines. There are indications of interest in sports medicine in Holland, Canada, and England.

(Courtesy Gerald W. Gardner)

Leonard Marmor, "Medial Epicondylitis," *California Medicine*, 91:23, July, 1959.

The great deal written about lateral epicondylitis ("tennis elbow") contrasts with the little written about medial epicondylitis. In the latter condition the patient usually complains of pain about the elbow, decided local tenderness over the medial epicondyle, with swelling or erythema, pain evoked by resisted flexion of the wrist and by pronation, and weakness of grip. It is caused by constant minor trauma and tension of the tendon attachment to the medial epicondyle. Pain and symptoms are relieved following local injection of the epicondyle and conjoined tendon with 2 cc of one per cent lidocaine hydrochloride (Xylocaine (R)) and 25 mg. of hydrocortisone in the same syringe. In a few cases it was necessary to apply a volar mold for several weeks. In more severe cases stripping the tendon from the epicondyle may be indicated.

George Twombly, Jr., "Physical Medicine in Treatment and Rehabilitation of Arthritis," *Clinical Medicine*, VI:1345-1348, August, 1959.

The main objectives of physical medicine in the treatment of arthritis are to relieve pain, increase and maintain range of motion of the involved joints, relieve secondary fibrositis and myositis, and improve function and independence. Heat is indicated to improve local circulation, relieve pain, and as a preliminary to massage and exercise. The mildest form of heat that can be tolerated and yet achieve therapeutic results should be used. Massage may be administered to the soft tissues surrounding a joint to alleviate pain and spasm. Exercise can contribute more than any other form of physical treatment. The type, amount, and technique should be specified. The patient may not understand the exercise regimen and instruction should be provided. Under-exercise may contribute to loss of joint motion; over-exercise may result in joint damage. Slight pain may follow exercise, if it persists for more than a day, the exercise is probably too severe.

L. Allen Erskine, "The Mechanisms Involved in Skiing Injuries." *American Journal of Surgery*, Part II. 97:667-671, May, 1959.

Two basic types of mechanisms are involved in all downhill skiing accidents, except for direct collision. In the first the forward motion is abruptly stopped. The skier lunges forward, propelled by his own momentum, and the tendoachillis or the peroneal groove, or the skis must give. The second type of accident occurs while the skier is turning, and torque is added to the forces present. The momentum carries the skier around, but if the ski tip cannot move fracture occurs somewhere between the ankle and the knee. The slower the person is going, the lower on the leg is the break.

J. Tigyí and T. A. Sebes, "The Coefficient of Temperature and Volume Diminution of the Muscle and Myosin Threads When Passively Stretched." *Acta Physiologica of the Academiae Scientiarum Hungaricae*, 16:123-127, 1959.

When the excised gastrocnemius of the frog is passively stretched the coefficient of temperature and volume diminution of the muscle and myosin threads is about 1. The authors claim that this substantiates their opinion that second phase volume diminution by means of passive stretching is caused by the crystallization of albumen molecules.

Herman Y. Efron, Harry K. Marks, and Richard Hall, "A Comparison of Group-Centered and Individual-Centered Activity Programs." *AMA Archives of General Psychiatry*, 1:120-123, November, 1959.

Levine, Marks, and Hall found psychiatric patients working with a lawn-mowing detail made better progress than did those assigned to O.T. Three possible explanations were offered: (1) More group feeling and patient interaction existed in the lawn-mowing detail. (2) Greater ego satisfaction resulted from a real job than from busy work. (3) O.T. was more complex and created greater stresses.

The present study set up an experimental situation to evaluate the first two hypotheses. It was concluded that neither group activity nor ego gratification *per se* explained the results. The therapeutic effect of lawn-mowing may result from its freedom from stress and decisions. Many patients resented having to do this work; removing some of the secondary gains from illness may allow for healthier motivation to manifest itself. Some support is added to the hypothesis that the personality of the therapist is more important than the work itself.

Marshall J. Orloff, "Species Differences." *Surgery*, 46:819-820, October, 1959.

Much of the progress in medicine has resulted from animal experimentation. Nevertheless, differences exist between man and laboratory animals. These include differences in susceptibility to drugs, cardiorespiratory system, nutrition, and physiology. Investigators usually report that findings in animals may have significance for humans, but all too often this note of caution is overlooked. The phenomena of species difference and its implications regarding the application of observations on animals to man must be kept in mind.

Rudolf Altschul and Terry A. Smart, "Influence of Water Deprivation on Serum Cholesterol in Rabbits." *Geriatrics*, 14:461-464, July, 1959.

Rabbits were deprived of water for 48 hours. This resulted in a significant rise in serum cholesterol. The increase of this level is greater than increases in red blood cells or hematocrit. Apparently a factor other than simple hemoconcentration is involved. Stress, decreased cholesterol degradation, and/or decreased excretion may have influenced this level.

Philip J. Rasch, "The Functional Capacities of a Yogi." *Journal of the American Osteopathic Association*, 58:520-523, April, 1959.

A study was made of the functional capacities of an experienced yogi. Physical examination revealed a well-nourished body. Dynamometric strength scores were about average for a man of his size, but his performance in the Harvard step test was poor. Scores in both tests may reflect a lack of experience with situations requiring maximal physical exertion. Respiratory and electroencephalographic studies suggested that the effects alleged to result from controlled breathing may be attributed to hyperventilation. Respiratory capacity was less than that predicted by standard formulae for an individual of the size of the subject. Roentgenographic examination revealed no pathological changes resulting from the practice of techniques stressing extreme flexibility.

IN MEMORIAM

Ross T. McIntire,

Vice Admiral (MC), USN, Ret.

(1889-1959)

Vice Admiral Ross T. McIntire, a member of the Advisory Board of the Association for Physical and Mental Rehabilitation, died in Chicago on Dec. 8. A military funeral with full honors was held on Dec. 14 at Arlington National Cemetery where Admiral McIntire was laid to rest.

Born in Salem, Oregon in 1889, Dr. McIntire received his medical degree from Willamette University Medical School (now the University of Oregon) in 1912. He was commissioned an Assistant Surgeon in 1917 and became chief of the Navy's Bureau of Medicine and Surgery with rank of Rear Admiral in 1938. In this capacity he supervised the great expansion of the medical department of the Navy during World War II.

He was personal physician to the late President Franklin D. Roosevelt from 1935 to 1945, years during which he was in virtually constant attendance to the President and which formed the basis of his book, "White House Physician."

He was made a Vice Admiral in 1944 and retired from active duty two years later. In 1946 he was named to organize the Red Cross blood program and in 1950 became chairman on medical policies and procedures for the program. He was the first chairman of the President's Committee on Employment of the Physically Handicapped, serving in that capacity from 1947-1954. Since 1955, Admiral McIntire was executive director of the International College of Surgeons in Chicago. He is survived by his wife, Pauline, who maintained the family residence in Coronado, Calif., and by a brother, Floyd.



Fig. 1

Neatness, attractiveness and convenience are provided in exercise clinics at VAH, Houston, Texas, through the use of wall boards to which various pieces of exercise equipment can be attached by hooks and clamps. In Fig. 1, two large boards are illustrated holding a variety of quad boots, springs, collars and slings. Note the addition of a shelf on the board at the left which allows handy storage of assorted weights.



Fig. 2

In Fig. 2, heavy exercise equipment is stored neatly in fabricated racks. At left, note the ladder arrangement for storing heavy iron dumbbells. In the center, a loaded bar bell is supported on two grooved 2x4's. "Half pyramids" on either side of the plinth accommodate up to 125 pounds of flat weights on heavy dowels. Heavy dumbbells are also stored in racks attached to the lower part of the table legs.

Courtesy, John J. Arena.

Chapter Activities

CHAPTER NEWS

Geographical jurisdiction over the following areas has been established by APMR chapters:

California-Nevada	California and Nevada
Eastern States	New Jersey, Southern New York
Grand Canyon	Utah, Montana, Wyoming, Colorado, Arizona, New Mexico
Heart of America	Kansas, Iowa, Arkansas, Missouri, Nebraska, Oklahoma
Middle Atlantic	Pennsylvania, Delaware, Maryland, Virginia, W. Virginia, Dist. of Columbia
Midwest	Illinois, Michigan, Wisconsin, Minnesota, N. Dakota, S. Dakota
New England	Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut
Northwestern Area	Washington, Oregon, Idaho
Southeastern Area	Alabama, Florida, Georgia, N. Carolina, S. Carolina, Mississippi, Tennessee
Texas-Louisiana	Texas and Louisiana
Western New York	Upstate New York
Ohio-Kentucky-Indiana	Ohio, Kentucky, and Indiana

Ohio-Kentucky-Indiana Chapter

The Ohio-Kentucky-Indiana Chapter of the Association for Physical and Mental Rehabilitation held its fall meeting in joint sessions with the Ohio Valley Chapter of the American Association for Rehabilitation Therapy and Association of Medical Rehabilitation Directors and Coordinators on October 23 and 24, 1959 at the Veterans Administration Hospital, Marion, Indiana. Theme of the conference was "New Horizons in Rehabilitation."

The morning session of the 23rd was presided over by Dennis Rice, Chief, Corrective Therapy, VA Hospital, Marion, Indiana. The session opened with a welcome from Dr. H. G. Hackett, Manager of VA Hospital, Marion, Indiana followed by a talk by Dr. Leo Rosenberg, Chief, Physical Medicine and Rehabilitation Service, VA Center, Dayton, Ohio, on "Expanding Corrective Therapy Vistas."

After Dr. Rosenberg's talk the group was taken on a tour of the Fisher Body Division of General Motors.

Lester O. Lennon, Manual Arts Therapist, VA Hospital, Marion, Indiana, presided over the afternoon session. The session opened with a talk by Dr. John M. Hardley, Professor of Psychology, Purdue University, on "Work and Recreation as Therapy."

Ralph Erb, Veterans' Advisor for Employment, Marion, Indiana, spoke on "Factors in the Placement of the Physically and Mentally Handicapped." Dr. Stanley F. Radzyminski, Chief, P.M.R., Marion VA Hospital, followed with the concluding remarks. The Benediction was offered by Chaplain Leonard J. Barthelemy, VA Hospital, Marion, Indiana. The conference adjourned until 7:00 p.m. at which time the Banquet was held at Emley's Restaurant.

Saturday morning, the 24th, was devoted to tours of the various clinics of Physical Medicine and to business meetings of the organizations represented.

Midwest Chapter

The Fall meeting was held at V.A. Center, Wood, Wisc. on Nov. 1. Reports were presented on the national conference at Miami Beach, a chapter business meeting was held, and a lecture on "Hypnotism in Medical Practice" was delivered by James Balistrieri, M.D.

The Spring meeting will be held in Chicago with Carl Peterson as chairman assisted by the CT staff at the VA Research Hospital.

News and Comments

DR. KNUDSON HONORED



(L. to R. Sumner G. Whittier, Veterans Administration Administrator, Maj. Gen. Melvin J. Maas, USMCR Ret. and Dr. Knudson.)

Dr. A. B. C. Knudson, Director, Physical Medicine and Rehabilitation Services, Veterans Administration, was recently awarded the Citation for Meritorious Service by the President's Committee on Employment of the Physically Handicapped. Maj. Gen. Melvin J. Maas, USMCR Ret., Chairman of the Committee, made the presentation which cited Dr. Knudson for "exceptional contributions in advancing the employment of the physically handicapped."

VOCATIONAL COUNSELLING AIDS RETURN TO WORK

Disabled veterans are returning to work more quickly and are getting better paying jobs, thanks to a nationwide vocational counseling service conducted by the Veterans Administration in its hospitals. Effectiveness of the service is shown by a five-year followup study made at the San Fernando, Calif., VA hospital.

Among 165 veterans treated for service-connected tuberculosis, those who took advantage of vocational rehabilitation offered by the hospital required less time to get into jobs or training and a shorter period to get back to full-time work. They also had greater gains in education and occupational levels following hospital discharge, and they stayed in their jobs longer and had less unemployment.

The study was made by Arthur J. Marion, Ph.D., and David Salkin, M.D., of the San Fernando VA hospital staff, with cooperation of the School of Medicine of the University of California at Los Angeles.

They found that patients who completed the rehabilitation program improved their formal education by more than a year of schooling.

Under direction of a counseling psychologist, the hospital's vocational counseling service evaluates vocational assets and potentials of patients and offers testing, counseling, and occupational exploration to those who need the help. Effective collaboration between the VA and the Office of Vocational Rehabilitation, State employment service, and other community agencies provides job or training placement for the veteran when he is ready for discharge.

Dr. Marion and Dr. Salkin reported their study in The American Review of Respiratory Diseases, Journal of the American Trudeau Society, medical section of the National Tuberculosis Association.

APMR TO BE REPRESENTED AT WHITE HOUSE CONFERENCE ON CHILDREN AND YOUTH

The Association for Physical and Mental Rehabilitation is one of nearly 500 national organizations affiliated with the Golden Anniversary White House Conference on Children and Youth. Seven thousand delegates will receive invitations from the President of the United States to attend the Conference which is scheduled for March 27-April 2 in Washington, D.C. This is the sixth such decennial conference held in the U.S. since President Theodore Roosevelt called the first in 1909.

The Council of National Organizations on Children and Youth of the Golden Anniversary White House Conference on Children and Youth is the framework joining the several hundred organizations of widely different size, interests and character. Shared by all is a concern for the well-being of children and youth that is expressed through each organization's own programs and activities. Dr. John E. Davis, Executive Director, will represent APMR on the Council.

The Conference tradition has produced the United States Children's Bureau, Federal and State child labor laws, and has influenced virtually every other forward development expressing this country's concern for its young according to Mrs. Rollin Brown, chairman of the Executive Committee. This year's conference will devote much of its time to a discussion of juvenile delinquency through theme assemblies, forums and workgroups. At the Conference, doctors, lawyers, educators, social workers and representatives of every discipline and special interest field will sit down with laymen to investigate the needs of youth and to develop a series of recommendations that will aid in expanding the creative potential of youth while meeting their special problems.

ENERGIZERS USED IN NP RESEARCH

A 27-hospital study of use of psychic energizing drugs against mental illness has been announced by the Veterans Administration. The project is to determine whether psychic energizers added to treatment with the tranquilizing drug, chlorpromazine, will benefit apathetic, chronic patients with the severe mental illness, schizophrenia. The 16-week controlled, cooperative study will involve some 500 long-hospitalized schizophrenic patients. Goal of the treatment is to decrease their apathy, disinterest, and withdrawal from life while increasing and maintaining their alertness and controlled activity.

Findings of the study will be based on information obtained both from laboratory tests and from clinical observation. The four psychic energizing drugs being used are isopraxamine, dextro-amphetamine, trifluorazine, and isocarboxid. The dosage will follow a fixed pattern during the first four weeks of the study but will be flexible thereafter.

TEACHERS COLLEGE SCHEDULES RECREATION THERAPY COURSE

Teachers College, Columbia University, has announced a Seminar on Recreation for the Emotionally Disturbed to be offered during the Spring term beginning February 9, 1960. The course designed for teachers, group workers, and recreation leaders working in hospitals for the mentally ill, or in special schools and institutions, is under the direction of Elizabeth Rosen, Ed.D.

CEREBRAL PALSY ORGANIZATION ELECTS

The American Academy for Cerebral Palsy held its thirteenth annual meeting in Los Angeles, November 30-December 2, 1959 and elected the following new officers: President, Raymond R. Rembolt, M.D., University Hospital-School, Iowa City, Iowa; President-Elect, George W. N. Eggers, M.D., Galveston, Texas; Vice President, Herman Josephy, M.D., Chicago; Secretary, Joseph D. Russ, M.D., New Orleans; and Treasurer, Samuel B. Thompson, M.D., Little Rock, Ark.

The 1960 Annual Meeting will be held at the Penn-Sheraton Hotel, Pittsburgh from October 5-8.

RECEIVES ASSOCIATION'S LIFE MEMBERSHIP AWARD



Richard E. Wallace (l.) receives the life membership award from Louis J. Souza, AFMR Representative Assembly Member from the Northwest Chapter.

Richard E. Wallace of Tacoma, Wash., was recently presented a life membership in the Association for Physical and Mental Rehabilitation on the recommendation of the organization's Awards Committee. Mr. Wallace, now retired, served on the staff of the American Lake V.A. Hospital for 35 years, the last nine of which were in the capacity of corrective therapist.

VIRUS ILLNESS MAY CAUSE MENTAL RETARDATION

Scientists at the North Little Rock, Ark., Veterans Administration hospital and the University of Arkansas Medical Center have indicated a possible relationship between virus illnesses in infants and mental retardation later in their lives. The virus infections may affect an individual's learning ability by damaging the central nervous system, the researchers said.

In their studies on animals, the investigators have found that virus infections can be blamed for some of the cases of mental slowness in which heredity previously was considered the controlling factor. The research so far has dealt only with learning ability. However, the scientists are conducting additional experiments on the pathology of lesions of the brain caused by virus illnesses, to learn whether such lesions possibly cause certain types of psychiatric disturbances.

The researchers are Dr. Carl E. Duffy, professor and chairman of the department of microbiology at the medical center; Dr. Oddist D. Murphree, chief of the VA hospital's research division; and Dr. Thomas T. Frost, the division's chief pathologist.

The purpose of the studies is to obtain basic knowledge regarding behavioral patterns that may follow virus infections, particularly those behavioral deficits that are slight or not readily apparent at the time of illness.

The scientists inoculated healthy young rats with a virus, inducing illness. Those animals which recovered were checked closely for their physical and mental reactions after they reached maturity.

The rats were placed in a complex maze where they had to find their way to water by making 14 consecutive correct decisions at the same number of choice points. Animals, eight days old when inoculated, were unable to find their way through the maze in numerous attempts to do so. Those from eight to 14 days old when inoculated also had great difficulty in mastering the maze. Those which were 14 days or older when subjected to the virus were able to master it readily.

The viruses which cause Japanese encephalitis, St. Louis encephalitis, Murray Valley encephalitis and West Nile

disease in man are currently being studied. It is anticipated that other viruses which cause disease in man, such as mumps, will be studied later. The data obtained show that a virus infection acquired early in life can have an adverse effect on the development of the nervous system, the researchers said.

Drs. Duffy and Murphree stated experiments indicated that a virus can affect learning ability when it infects an animal shortly after birth. Previous experiments by other researchers can show the same was true of children whose mothers were infected during the first three months of pregnancy.

When the child is infected in the first few hours or days after birth, his learning processes may be affected for the rest of his life regardless of the mental capacities he has inherited.

"We find a very definite retardation in mature animals which, when quite young, recover from the injected virus," Dr. Murphree said. "Some of them are much more sluggish while others seem to have lost entirely their ability to learn difficult and new responses. Usually, the older the animal, the less effect virus infections will have in causing retardation."

The animal research done by Dr. Duffy and Dr. Murphree lays the foundation for clinical research to be done later on humans. Clinical research, Dr. Duffy said, could determine the importance of added precautions to prevent virus infections in infants.

It is believed that some viruses may infect children with no apparent immediate harm, as occurred in the experimental animals, but have physical effects from which psychiatric troubles might develop later in adulthood. Still other types of viruses may "sleep" in the nervous system for years, causing little or no harm until some stress or strain activates them later.

Dr. Duffy, as a virologist, helped develop the vaccine used widely during World War II against Japanese "B" encephalitis. He has been widely recognized as a teacher as well as research expert.

Dr. Murphree, a psychologist, has been studying behavioral pathology in animals for the past five years at the VA's North Little Rock hospital.

VA INCREASING MALE NURSES

Men are playing an increasingly important part in furnishing professional nursing care in Veterans Administration Hospitals. Of the agency's 170 hospitals, 124 now have men on their staffs as professional nurses. The 124 hospitals employ a total of about 500 men, some 125 of whom are in key positions of nursing education and administration. Not quite half of the 500 work in VA mental hospitals. Of the 10 professional nurses who make up the central administrative staff for the VA nursing service in Washington, D.C., two are men.

Representative of the men working as professional nurses in VA hospitals is Charles I. Purdy, the night supervisor of nurses at the Houston, Texas, VA hospital.

Purdy received a battlefield commission in World War II and was recalled to active duty by the Army during the Korean fighting.

While serving as a lieutenant in a medical company with the 40th Division in Korea, he designed the portable stretcher which became standard equipment in the Army Medical Corps. He also was cited by the Army for developing a litter sled complete with a system of ropes and pulleys for evacuating the wounded from steep slopes in Korea. These inventions saved many American lives during the vicious Korean fighting.

Purdy believes in finding better ways to care for the sick in peacetime as well as in war. "That's one reason I have enjoyed working in the VA nursing service," he said. "New ideas are welcomed and the VA encourages its nurses to attain higher educational levels."

Now 46 years old, Purdy lives in Houston with his wife and three daughters. In addition to his duties at the VA hospital, he attends the University of Houston, where he is working toward his master's degree.

Book Reviews

Physiology of Motion, by G. B. Duchenne. Translated and Edited by Emanuel B. Kaplan. (Philadelphia: W. B. Saunders Company, 1959. 612 pp. \$11.00.)

Regular readers of this *Journal* will recall that in 1956 an article by Jokl and Reich fittingly commemorated the 150th anniversary of the birth of Guillaume Benjamin Amand Duchenne de Boulogne. This is an English version of his master work, *Physiologie des Mouvements*, which the translator declares "may be placed among the greatest books of all times." So far as the reviewer can determine, it is actually a reprint from the plates used in the Lippincott edition of 1949, although there appears to be nothing in the text to so indicate.

Duchenne's fame rests largely on the fact that he originated the science of electrotherapy and gave a vast amount of study to the investigation of the muscular responses produced by electrical stimulation. Unfortunately, only the more superficial muscles may be studied by this means, and the student must keep in mind that since his time great advances have been made in technique. Some of Duchenne's studies have been found to be misleading, since they showed what a muscle *can* do rather than what it *does*.

With this warning out of the way, let it be said that this remains an immensely valuable book—one full of thought-provoking insights. For example: "It is better to lose all the muscles moving the foot on the leg than one of these muscles." (Italics in the original.) The work is especially valuable to the therapist, since it concerns itself largely with muscular pathology, whereas the college text books on kinesiology used in the physical education departments must of necessity deal principally with the normal muscle.

Dr. Kaplan's translation is a labor of love and deserves the highest praise. In addition to translating the text, he has carefully annotated it, in several instances correcting errors which had crept into Duchenne's work, supplying brief explanatory notes, and otherwise earning the reader's gratitude. The nomenclature used by Duchenne is now archaic, and Kaplan has brought it into accordance with the Anglicized form of the BNA.

A copy of this classic should be in every hospital library and in the professional library of every therapist.

JJR

How to Improve Your Fencing, Maxwell R. Garret, consultant. (Chicago: The Athletic Institute, n.d., 60 pp. \$5.00)

The publishers appear to be in some doubt as to the title of this book. Although the cover reads *How to Improve Your Fencing*, the foreword refers to the work as *Beginning Fencing*. The content is that of beginning fencing and is divided into four units: Introduction to Foil Fencing, Elementary Offense, Elementary Defense, and Strategy and Tactics. This last appears to be a *non sequitur*, for it is difficult to believe that a fencer with a background of only elementary offense and defense is prepared for Strategy and Tactics. The work concerns only fencing with the foil, particularly as it is taught at the University of Illinois. The title might have read, *Beginning Foil Fencing*.

Although the illustrations are profuse (four per page), many have little relationship to the textual material. As regards the textual material, this reviewer has always viewed with suspicion declarative sentences which are punctuated with exclamation points! One-third of the Strategy and Tactics material is so punctuated, and it is not easy to comprehend the exclamatory nature of "This principle permits an attacker to employ an action known as the Double!" or "Once you have mastered the fundamentals of fencing, competition is awaiting you!" The "soccer," or "kick-'em-in-the-knee," lunge illustrated on pages 18 and 45 is not universally recognized as the most expeditious method of propelling one's self forward, nor is the "stop-hit" (low stop thrust), shown on page 50, executed in the manner recommended by Clery, Gaudin, Merignac, Ducret, Deladrier

et al. These authors advise against "opening the line" when stop thrusting. The photographic material has been reproduced totally from the Athletic Institute's slidefilm *Beginning Fencing*, and the film may show a continuity which is not evident in the manual.

While visual aids and texts are an important asset to the student wishing to improve a sports skill, there is still no substitute for a patient and well-informed "pro" for the teaching of fundamentals.

WRP

Research Methods in Health, Physical Education, Recreation. 2nd Edition. M. Gladys Scott, editor. (American Association for Health, Physical Education, and Recreation. 510 pp. \$6.00)

The first edition of this text filled a long-felt need of research workers and graduate students in physical education, health, and recreation, and is still the best source in this field. The second edition has completely reorganized the material, changed the editorial staff, and replaced thirty of the original forty contributing authors. It is noteworthy that among those who contributed to the first edition but not the second are T. K. Cureton, Anna Espenschiede, Franklin Henry, P. V. Karpovich, C. H. McCloy, and Jesse F. Williams. The professional stature of these people lent a great deal of credence to the first edition which is lacking in the second.

The reorganization of the material leaves much to be desired: there is little continuity and some topics, such as Methods of Instruction, are difficult to justify. Documentation for a large part is poor, and many of the contributing authors do not cite pertinent standard texts and journals of the subject about which they are writing, e.g., no laboratory planning and instrumentation chapter; the section on photography contains no references to photographic or photogrammetric journals, nor to the journals in human biology where pertinent photographic work has been presented; the section on kinesiology does not cite *Ergonomics*; the section on anthropometry cites neither Hrdlika nor Boyd; the section on electromyography contains only references to the *Research Quarterly*; and neither *Applied Experimental Psychology* (Chapans, et al.) nor Stevens' 1436 page *Handbook of Experimental Psychology* are cited in the section on applied psychology.

The value of this edition to the graduate student could have been materially increased by the inclusion of material on sources of error, "cookbook" formulae for statistics, and a practical discussion concerning the use of calculating machines.

On page 155, the Pacific Scientific Company is erroneously located in Pasadena. Its correct address is Bell Gardens, California.

There has been included in this edition a chapter called "action research." The purpose of such "research" is to change behavior or environmental situations and, according to the authors of this chapter, *everybody* in the community is qualified to conduct such research. The statements concerning the differentiation between this and other research literally do not make sense, and the topic hardly warrants inclusion in a research methods text.

New editions of guides such as *Research Methods* should not attempt to do more than bring the material up to date and strengthen parts which are weak. Complete reorganization, such as was attempted here, should be reserved for new titles. The first and second editions of *Research Methods* are two entirely different books, not two editions of the same basic work, and for subject matter the first is the superior.

WRP

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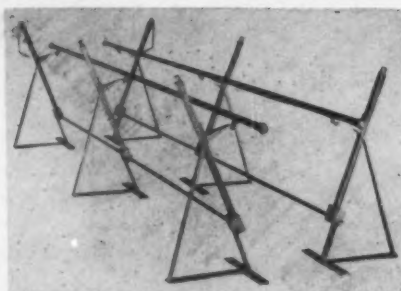
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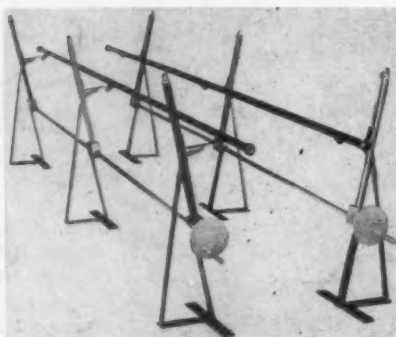
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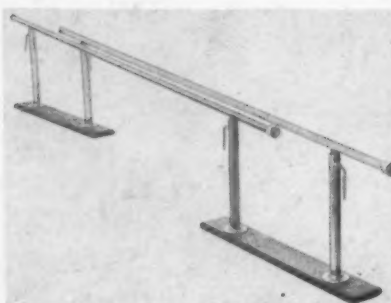
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